

REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on July 8, 2003, and the references cited therewith.

Claims 1, 10 and 24 have been amended. New claims 42 and 43 have been added. Claims 1-24 and 42-43 are now pending in this application.

§103 Rejection of the Claims

Claims 1-4 and 9 were rejected under 35 USC § 103(a) as being unpatentable over Cole et al. (U.S. Patent No. 5,550,373) in view of Tokuda et al. (U.S. Patent No. 5,144,397). This rejection is respectfully traversed.

The present claims address the problem of detecting a larger band of wavelengths passed by a band pass filter than is possible with a single detector. Thus, in each of the amended independent claims, this relationship between bands sensed by the detectors has been expressly stated. Tokuda et al. deals with distinguishing between wavelengths, not ensuring detection of an entire band of wavelengths. Therefore, it would not have been obvious to combine Tokuda et al. with Cole et al.

Tokuda et al., has an object of providing “a light responsive semiconductor device providing an output signal that changes dramatically at a particular wavelength of incident light.” Co 2, lines 14-17, and FIG.s 11a and 11b. Such “drastic change” characteristics make it useful in optical multiplex communication systems where “wavelength critical optical detection is of high significance.” See Col. 4, lines 58-66. Thus, Tokuda et al. does not suggest using multiple detectors for detecting adjacent bands of wavelengths, or overlapping bands of wavelengths in combination with a bandpass filter. Tokuda et al. describes independently detecting different wavelengths. It simply would not make sense to use Tokuda et al. to sense adjacent, much less overlapping bands of wavelengths. The whole point of Tokuda et al. is to provide an abrupt transition at a critical wavelength. As seen in FIG.s 11a and 11b of Tokuda et al.: “the changes in absorption characteristics as a function of wavelength...is very sharp. Therefore, even when the wavelengths λ_1 and λ_2 are very close, they can be selectively detected.” Col. 8, lines 35-40. This does not suggest detecting adjacent or overlapping high and low bands passed by a bandpass filter.

The Office Action references FIG. 12 of Tokuda et al., and indicates that “It would have been obvious to use the Tokuda et al. detector in the Cole et al. device to improve the wavelength sensitivity.” This reason fits in with Tokuda et al. description of FIG. 12: “... different wavelength signals can be independently detected.” Col. 8, lines 56-57. Wavelength sensitivity is important in Tokuda et al. as discussed with respect to FIG.s 11a and 11b. The present invention solves the problem of detecting both high and low bands of wavelengths passed by the bandpass filter, not in being more selective to different wavelengths. One would not be motivated to combine the teachings of Col et al. and Tokuda et al. In view of the amendments to clarify the claims, a prima facie case of obviousness has not been established, and the rejection should be withdrawn. Claims 2-9 depend from claim 1 and are believed patentable for at least the same reasons as claim 1.

Cole et al. is concerned with sensing light passed from a filter. Only the “portion of the light that is passed by the cavity is detected by an infrared microbolometer or CCD array.” Abstract. Thus, there is no suggestion in Cole et al. that multiple detectors for different wavelengths would be needed, since the different wavelengths are removed by the filter. The detector is used to detect the band of wavelengths passed by the filter, not to distinguish between wavelengths. Some embodiments of Tokuda et al. are directed at detecting different wavelengths. There is no filter in Tokuda et al. that screens out these different wavelengths. Thus, the stated reason for combining them is actually against the teaching of the references. They clearly are directed to different purposes, and there is no actual suggestion to combine them other than by using the current application impermissibly as a roadmap.

Each of the amended independent claims now recite that high and low bands of wavelengths are detected by the two sensors, and that the bands are either adjacent or overlapping. Thus, they are believed to clearly distinguish over the references, and the rejection should be withdrawn.

New claim 43 has been added to specify the relationship between the bandpass filter and the low and high wavelengths bands that are detected.

Allowable Subject Matter

Claim 18 was indicated to be allowable if rewritten to overcome the rejection(s) under 35 USC § 112, second paragraph, set forth in the Office Action and to include all limitations of the base claim and any intervening claims. Claim 42 is such a rewrite of claim 18 including all the limitations of the base claims that were previously pending, and is believed allowable.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 373-6972 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743

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